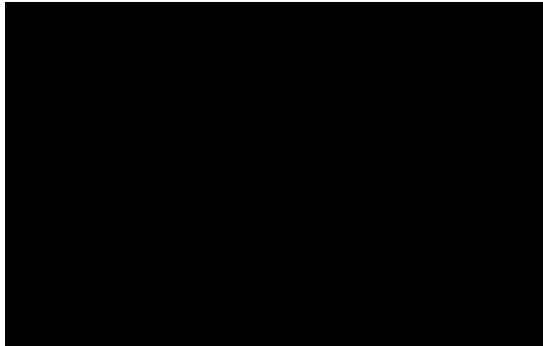


EXHIBIT Q



November 04, 2013



RE: ASARCO 1924220A

WorkOrder: 13110053

Dear [REDACTED]:

TEKLAB, INC received 8 samples on 11/1/2013 5:00:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

A handwritten signature in black ink that reads "Marvin L. Darling II".

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Client: [REDACTED]

Work Order: [REDACTED]

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Abbr Definition

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.

DNI Did not ignite

DUP Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MB Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TNTC Too numerous to count (> 200 CFU)

Qualifiers

- Unknown hydrocarbon

E - Value above quantitation range

J - Analyte detected below quantitation limits

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside recovery limits

B - Analyte detected in associated Method Blank

H - Holding times exceeded

M - Manual Integration used to determine area response

R - RPD outside accepted recovery limits

X - Value exceeds Maximum Contaminant Level



Case Narrative

Client: [REDACTED]

Work Order: [REDACTED]

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

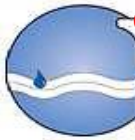
Cooler Receipt Temp: 12.6 °C

This report was revised on 11/4/13 per [REDACTED] request. The reason for the revision is to report Zinc on all samples. Please replace report dated 11/4/13 with this report. MLDII 11/4/13

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2014	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2014	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2014	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2014	Springfield
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2014	Collinsville
Arkansas	ADEQ	88-0966		3/14/2014	Collinsville
Illinois	IDPH	17584		5/31/2015	Collinsville
Kentucky	UST	0073		4/5/2014	Collinsville
Missouri	MDNR	00930		5/31/2015	Collinsville
Oklahoma	ODEQ	9978		8/31/2014	Collinsville

**Teklab, Inc.**
Environmental Laboratory

Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: [REDACTED]

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

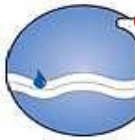
Lab ID: 13110053-001

Client Sample ID: SB-1 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/01/2013 11:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/04/2013 15:00	93336
Barium	NELAP	0.005		0.0136	mg/L	1	11/04/2013 15:00	93336
Cadmium	NELAP	0.002	J	0.0006	mg/L	1	11/04/2013 15:00	93336
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:00	93336
Lead	NELAP	0.04		0.0927	mg/L	1	11/04/2013 15:00	93336
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/04/2013 15:00	93336
Silver	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:00	93336
Zinc	NELAP	0.01		0.055	mg/L	1	11/04/2013 15:00	93336
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/04/2013 12:09	93337

**Teklab, Inc.**
Environmental Laboratory

Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: [REDACTED]

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

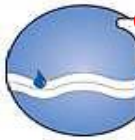
Lab ID: 13110053-002

Client Sample ID: SB-1 (0.5-1 ft)

Matrix: SOLID

Collection Date: 11/01/2013 11:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/04/2013 15:11	93336
Barium	NELAP	0.005		0.0089	mg/L	1	11/04/2013 15:11	93336
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/04/2013 15:11	93336
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:11	93336
Lead	NELAP	0.04	J	0.0069	mg/L	1	11/04/2013 15:11	93336
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/04/2013 15:11	93336
Silver	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:11	93336
Zinc	NELAP	0.01	J	0.0069	mg/L	1	11/04/2013 15:11	93336
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/04/2013 12:11	93337

**Teklab, Inc.**
Environmental Laboratory**Laboratory Results**<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: [REDACTED]

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

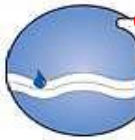
Lab ID: 13110053-003

Client Sample ID: SB-2 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/01/2013 13:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/04/2013 15:14	93336
Barium	NELAP	0.005		0.007	mg/L	1	11/04/2013 15:14	93336
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/04/2013 15:14	93336
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:14	93336
Lead	NELAP	0.04		< 0.04	mg/L	1	11/04/2013 15:14	93336
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/04/2013 15:14	93336
Silver	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:14	93336
Zinc	NELAP	0.01	J	0.0052	mg/L	1	11/04/2013 15:14	93336
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/04/2013 12:23	93337

**Teklab, Inc.**
Environmental Laboratory

Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: [REDACTED]

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

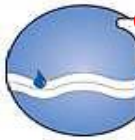
Lab ID: 13110053-004

Client Sample ID: SB-2 (0.5-1 ft)

Matrix: SOLID

Collection Date: 11/01/2013 13:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/04/2013 15:18	93336
Barium	NELAP	0.005		0.0104	mg/L	1	11/04/2013 15:18	93336
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/04/2013 15:18	93336
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:18	93336
Lead	NELAP	0.04		< 0.04	mg/L	1	11/04/2013 15:18	93336
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/04/2013 15:18	93336
Silver	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:18	93336
Zinc	NELAP	0.01	J	0.0067	mg/L	1	11/04/2013 15:18	93336
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/04/2013 12:25	93337

**Teklab, Inc.**
Environmental Laboratory

Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: [REDACTED]

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Lab ID: 13110053-005

Client Sample ID: SB-3 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/01/2013 13:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/04/2013 15:22	93336
Barium	NELAP	0.005		0.0084	mg/L	1	11/04/2013 15:22	93336
Cadmium	NELAP	0.002		0.0021	mg/L	1	11/04/2013 15:22	93336
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:22	93336
Lead	NELAP	0.04		1.03	mg/L	1	11/04/2013 15:22	93336
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/04/2013 15:22	93336
Silver	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:22	93336
Zinc	NELAP	0.01		0.154	mg/L	1	11/04/2013 15:22	93336
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/04/2013 12:27	93337



Laboratory Results

[REDACTED]

Client: [REDACTED]

Work Order: [REDACTED]

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Lab ID: 13110053-006

Client Sample ID: SB-3 (0.5-1 ft)

Matrix: SOLID

Collection Date: 11/01/2013 14:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/04/2013 15:26	93336
Barium	NELAP	0.005		0.0135	mg/L	1	11/04/2013 15:26	93336
Cadmium	NELAP	0.002		0.0037	mg/L	1	11/04/2013 15:26	93336
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:26	93336
Lead	NELAP	0.04		2.1	mg/L	1	11/04/2013 15:26	93336
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/04/2013 15:26	93336
Silver	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:26	93336
Zinc	NELAP	0.01		0.342	mg/L	1	11/04/2013 15:26	93336
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002	J	0.00008	mg/L	1	11/04/2013 12:30	93337



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: [REDACTED]

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Lab ID: 13110053-007

Client Sample ID: SB-4 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/01/2013 14:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/04/2013 15:37	93336
Barium	NELAP	0.005		0.0123	mg/L	1	11/04/2013 15:37	93336
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/04/2013 15:37	93336
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:37	93336
Lead	NELAP	0.04	J	0.0065	mg/L	1	11/04/2013 15:37	93336
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/04/2013 15:37	93336
Silver	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:37	93336
Zinc	NELAP	0.01	J	0.0068	mg/L	1	11/04/2013 15:37	93336
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/04/2013 12:32	93337



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: [REDACTED]

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Lab ID: 13110053-008

Client Sample ID: SB-4 (0.5-1 ft)

Matrix: SOLID

Collection Date: 11/01/2013 14:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/04/2013 15:41	93336
Barium	NELAP	0.005		0.0056	mg/L	1	11/04/2013 15:41	93336
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/04/2013 15:41	93336
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:41	93336
Lead	NELAP	0.04	J	0.023	mg/L	1	11/04/2013 15:41	93336
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/04/2013 15:41	93336
Silver	NELAP	0.01		< 0.01	mg/L	1	11/04/2013 15:41	93336
Zinc	NELAP	0.01	J	0.006	mg/L	1	11/04/2013 15:41	93336
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/04/2013 12:36	93337



Receiving Check List

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: [REDACTED]

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Carrier: Josh Cerar

Received By: SRH

Completed by:

Emily Pohlman

Reviewed by:

Marvin L. Darling II

On:

On:

01-Nov-13

04-Nov-13

Emily E. Pohlman

Marvin L. Darling

Pages to follow: Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	Temp °C 12.6
Type of thermal preservation?	None <input type="checkbox"/>	Ice <input checked="" type="checkbox"/>	Blue Ice <input type="checkbox"/>	Dry Ice <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Reported field parameters measured:	Field <input type="checkbox"/>	Lab <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water; at least one vial per sample has zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials <input checked="" type="checkbox"/>
Water - TOX containers have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No TOX containers <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
NPDES/CWA TCN interferences checked/treated in the field?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Any No responses must be detailed below or on the COC.

Samples on: <input checked="" type="checkbox"/> ICE <input type="checkbox"/> BLUE ICE <input type="checkbox"/> NO ICE <u>12.4</u> °C Preserved in: <input type="checkbox"/> LAB <input type="checkbox"/> FIELD FOR LAB USE ONLY Lab Notes					
Client Comments: <u>ASARCO TAT ANAL'</u> <u>Ore Day TAT</u>					
Are these samples known to be involved in litigation? If yes, a surcharge will apply <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Are these samples known to be hazardous? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Are there any required reporting limits to be met on the requested analysis?. If yes, please provide limits in the comment section. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
Project Name/Number Asarco 1924220A		Sample Collector's Name <u>Larry Norton</u>		INDICATE ANALYSIS REQUESTED	
Results Requested <input type="checkbox"/> Standard <input type="checkbox"/> 1-2 Day (100% Surcharge) <input checked="" type="checkbox"/> Other <input type="checkbox"/> 3 Day (50% Surcharge)		Billing Instructions		MATRIX	
Lab Use Only	Sample Identification	Date/Time Sampled	Drinking Water	Soil	Sludge
1310053	S8-1(05-1FT)	7/10 / 1100		X	
T02	S8-1(05-1FT)	7/10 / 1100		X	
T03	S8-2(05-1FT)	7/10 / 1100		X	
T04	S8-2(05-1FT)	7/10 / 1100		X	
T05	S8-3(05-1FT)	7/10 / 1100		X	
T06	S8-3(05-1FT)	7/10 / 1100		X	
T07	S8-4(05-1FT)	7/10 / 1100		X	
T08	S8-4(05-1FT)	7/10 / 1100		X	
Relinquished By			Received By		Date/Time
<u>[Signature]</u>			<u>[Signature]</u>		<u>7/10/13 1620</u>

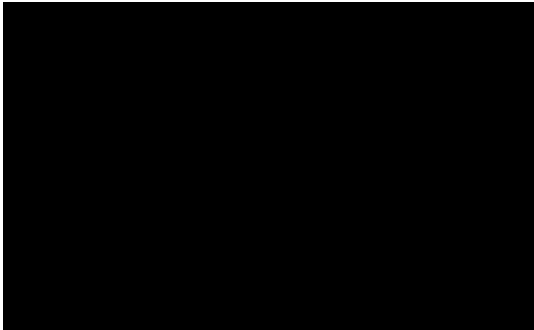
The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client.

BottleOrder: 17146



ASARCOSEMO00032159

November 04, 2013



RE: ASARCO 1924220A

WorkOrder: 13110052

Dear [REDACTED]:

TEKLAB, INC received 8 samples on 11/1/2013 5:00:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Client: [REDACTED]

Work Order: 13110052

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Abbr Definition

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.

DNI Did not ignite

DUP Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MB Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TNTC Too numerous to count (> 200 CFU)

Qualifiers

- Unknown hydrocarbon

E - Value above quantitation range

J - Analyte detected below quantitation limits

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside recovery limits

B - Analyte detected in associated Method Blank

H - Holding times exceeded

M - Manual Integration used to determine area response

R - RPD outside accepted recovery limits

X - Value exceeds Maximum Contaminant Level



Case Narrative

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110052

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Cooler Receipt Temp: 12.6 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2014	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2014	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2014	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2014	Springfield
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2014	Collinsville
Arkansas	ADEQ	88-0966		3/14/2014	Collinsville
Illinois	IDPH	17584		5/31/2015	Collinsville
Kentucky	UST	0073		4/5/2014	Collinsville
Missouri	MDNR	00930		5/31/2015	Collinsville
Oklahoma	ODEQ	9978		8/31/2014	Collinsville



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110052

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Lab ID: 13110052-001

Client Sample ID: SB-1 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/01/2013 11:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		7.2	%	1	11/01/2013 18:41	R183571
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.5		9.94	mg/Kg-dry	1	11/04/2013 13:41	93335
Barium	NELAP	0.5		16.2	mg/Kg-dry	1	11/04/2013 13:41	93335
Cadmium	NELAP	0.2		52.9	mg/Kg-dry	1	11/04/2013 13:41	93335
Chromium	NELAP	1		6.21	mg/Kg-dry	1	11/04/2013 13:41	93335
Lead	NELAP	4		16600	mg/Kg-dry	1	11/04/2013 13:41	93335
Selenium	NELAP	4		< 4	mg/Kg-dry	1	11/04/2013 13:41	93335
Silver	NELAP	0.55		4.46	mg/Kg-dry	1	11/04/2013 13:41	93335
Zinc	NELAP	1		2830	mg/Kg-dry	1	11/04/2013 16:24	93335
SW-846 7471B								
Mercury	NELAP	0.011		0.033	mg/Kg-dry	1	11/04/2013 11:17	93328



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110052

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Lab ID: 13110052-002

Client Sample ID: SB-1 (0.5-1 ft)

Matrix: SOLID

Collection Date: 11/01/2013 11:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		7.5	%	1	11/01/2013 18:42	R183571
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.5		12.7	mg/Kg-dry	1	11/04/2013 13:44	93335
Barium	NELAP	0.5		11.5	mg/Kg-dry	1	11/04/2013 13:44	93335
Cadmium	NELAP	0.2		60.7	mg/Kg-dry	1	11/04/2013 13:44	93335
Chromium	NELAP	1		4.86	mg/Kg-dry	1	11/04/2013 13:44	93335
Lead	NELAP	4		18100	mg/Kg-dry	1	11/04/2013 13:44	93335
Selenium	NELAP	4		< 4	mg/Kg-dry	1	11/04/2013 15:29	93335
Silver	NELAP	0.55		6.81	mg/Kg-dry	1	11/04/2013 13:44	93335
Zinc	NELAP	1		3530	mg/Kg-dry	1	11/04/2013 15:29	93335
SW-846 7471B								
Mercury	NELAP	0.01		0.032	mg/Kg-dry	1	11/04/2013 11:19	93328



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110052

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

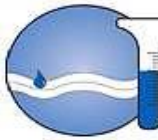
Lab ID: 13110052-003

Client Sample ID: SB-2 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/01/2013 13:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		6.2	%	1	11/01/2013 18:42	R183571
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	4.55		14.7	mg/Kg-dry	2	11/04/2013 14:22	93335
Barium	NELAP	0.91		13.6	mg/Kg-dry	2	11/04/2013 14:22	93335
Cadmium	NELAP	0.36		24	mg/Kg-dry	2	11/04/2013 14:22	93335
Chromium	NELAP	1.82		2.93	mg/Kg-dry	2	11/04/2013 14:22	93335
Lead	NELAP	7.27		13900	mg/Kg-dry	2	11/04/2013 14:22	93335
Selenium	NELAP	3.64		< 3.64	mg/Kg-dry	1	11/04/2013 15:35	93335
Silver	NELAP	1		4.71	mg/Kg-dry	2	11/04/2013 14:22	93335
Zinc	NELAP	1.82		893	mg/Kg-dry	2	11/04/2013 14:22	93335
SW-846 7471B								
Mercury	NELAP	0.011		0.041	mg/Kg-dry	1	11/04/2013 11:21	93328



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110052

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Lab ID: 13110052-004

Client Sample ID: SB-2 (0.5-1 ft)

Matrix: SOLID

Collection Date: 11/01/2013 13:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		5.4	%	1	11/01/2013 18:42	R183571
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	4.63		9.98	mg/Kg-dry	2	11/04/2013 14:26	93335
Barium	NELAP	0.93		7.69	mg/Kg-dry	2	11/04/2013 14:26	93335
Cadmium	NELAP	0.37		17.2	mg/Kg-dry	2	11/04/2013 14:26	93335
Chromium	NELAP	1.85		1.93	mg/Kg-dry	2	11/04/2013 14:26	93335
Lead	NELAP	7.41		8850	mg/Kg-dry	2	11/04/2013 14:26	93335
Selenium	NELAP	3.7		< 3.7	mg/Kg-dry	1	11/04/2013 15:41	93335
Silver	NELAP	1.02		3.19	mg/Kg-dry	2	11/04/2013 14:26	93335
Zinc	NELAP	1.85		674	mg/Kg-dry	2	11/04/2013 14:26	93335
SW-846 7471B								
Mercury	NELAP	0.01		0.046	mg/Kg-dry	1	11/04/2013 11:23	93328



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110052

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Lab ID: 13110052-005

Client Sample ID: SB-3 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/01/2013 13:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		12.2	%	1	11/01/2013 18:42	R183571
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.45		11.6	mg/Kg-dry	1	11/04/2013 13:55	93335
Barium	NELAP	0.49		42.7	mg/Kg-dry	1	11/04/2013 13:55	93335
Cadmium	NELAP	0.2		16.7	mg/Kg-dry	1	11/04/2013 13:55	93335
Chromium	NELAP	0.98		6.2	mg/Kg-dry	1	11/04/2013 13:55	93335
Lead	NELAP	3.92		19500	mg/Kg-dry	1	11/04/2013 13:55	93335
Selenium	NELAP	3.92		< 3.92	mg/Kg-dry	1	11/04/2013 15:47	93335
Silver	NELAP	0.54		3.59	mg/Kg-dry	1	11/04/2013 13:55	93335
Zinc	NELAP	0.98		777	mg/Kg-dry	1	11/04/2013 13:55	93335
SW-846 7471B								
Mercury	NELAP	0.011		0.211	mg/Kg-dry	1	11/04/2013 11:30	93328



Laboratory Results

<http://www.teklabin.com/>

Client: [REDACTED]

Work Order: 13110052

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Lab ID: 13110052-006

Client Sample ID: SB-3 (0.5-1 ft)

Matrix: SOLID

Collection Date: 11/01/2013 14:00

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		13.4	%	1	11/01/2013 18:43	R183571
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.45		11.2	mg/Kg-dry	1	11/04/2013 13:59	93335
Barium	NELAP	0.49		50.5	mg/Kg-dry	1	11/04/2013 13:59	93335
Cadmium	NELAP	0.2		17.1	mg/Kg-dry	1	11/04/2013 13:59	93335
Chromium	NELAP	0.98		9.04	mg/Kg-dry	1	11/04/2013 13:59	93335
Lead	NELAP	3.92		8840	mg/Kg-dry	1	11/04/2013 13:59	93335
Selenium	NELAP	3.92	J	2.2	mg/Kg-dry	1	11/04/2013 15:53	93335
Silver	NELAP	0.54		2.39	mg/Kg-dry	1	11/04/2013 13:59	93335
Zinc	NELAP	0.98		730	mg/Kg-dry	1	11/04/2013 13:59	93335
SW-846 7471B								
Mercury	NELAP	0.011		0.154	mg/Kg-dry	1	11/04/2013 11:32	93328



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110052

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Lab ID: 13110052-007

Client Sample ID: SB-4 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/01/2013 14:25

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		5.8	%	1	11/01/2013 18:43	R183571
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	4.63		8.72	mg/Kg-dry	2	11/04/2013 14:30	93335
Barium	NELAP	0.93		15.1	mg/Kg-dry	2	11/04/2013 14:30	93335
Cadmium	NELAP	0.37		15.9	mg/Kg-dry	2	11/04/2013 14:30	93335
Chromium	NELAP	1.85		3.57	mg/Kg-dry	2	11/04/2013 14:30	93335
Lead	NELAP	7.41		9770	mg/Kg-dry	2	11/04/2013 14:30	93335
Selenium	NELAP	3.7		< 3.7	mg/Kg-dry	1	11/04/2013 15:59	93335
Silver	NELAP	1.02		2.2	mg/Kg-dry	2	11/04/2013 14:30	93335
Zinc	NELAP	1.85		718	mg/Kg-dry	2	11/04/2013 14:30	93335
SW-846 7471B								
Mercury	NELAP	0.011		0.049	mg/Kg-dry	1	11/04/2013 11:35	93328



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110052

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Lab ID: 13110052-008

Client Sample ID: SB-4 (0.5-1 ft)

Matrix: SOLID

Collection Date: 11/01/2013 14:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		6.4	%	1	11/01/2013 18:43	R183571
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	5		13.7	mg/Kg-dry	2	11/04/2013 14:33	93335
Barium	NELAP	1		10.7	mg/Kg-dry	2	11/04/2013 14:33	93335
Cadmium	NELAP	0.4		11.5	mg/Kg-dry	2	11/04/2013 14:33	93335
Chromium	NELAP	2		3.2	mg/Kg-dry	2	11/04/2013 14:33	93335
Lead	NELAP	8		16600	mg/Kg-dry	2	11/04/2013 14:33	93335
Selenium	NELAP	4	J	2.2	mg/Kg-dry	1	11/04/2013 16:18	93335
Silver	NELAP	1.1		3.38	mg/Kg-dry	2	11/04/2013 14:33	93335
Zinc	NELAP	2		521	mg/Kg-dry	2	11/04/2013 14:33	93335
SW-846 7471B								
Mercury	NELAP	0.011		0.044	mg/Kg-dry	1	11/04/2013 11:37	93328



Receiving Check List

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110052

Client Project: ASARCO 1924220A

Report Date: 04-Nov-13

Carrier: Josh Cerar

Received By: SRH

Completed by:

Emily Pohlman

Reviewed by:

Marvin L. Darling II

On:

On:

01-Nov-13

04-Nov-13

Emily E. Pohlman

Marvin L. Darling

Pages to follow: Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	Temp °C 12.6
Type of thermal preservation?	None <input type="checkbox"/>	Ice <input checked="" type="checkbox"/>	Blue Ice <input type="checkbox"/>	Dry Ice <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Reported field parameters measured:	Field <input type="checkbox"/>	Lab <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water ; at least one vial per sample has zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials <input checked="" type="checkbox"/>
Water - TOX containers have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No TOX containers <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
NPDES/CWA TCN interferences checked/treated in the field?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Any No responses must be detailed below or on the COC.

100

-ASARCOSEMO00032172

November 11, 2013

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]



RE: ASARCO 1924220A

WorkOrder: 13110462

Dear [REDACTED]:

TEKLAB, INC received 4 samples on 11/8/2013 4:05:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Client: [REDACTED]

Work Order: 13110462

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Abbr Definition

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.

DNI Did not ignite

DUP Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MB Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TNTC Too numerous to count (> 200 CFU)

Qualifiers

- Unknown hydrocarbon

E - Value above quantitation range

J - Analyte detected below quantitation limits

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside recovery limits

B - Analyte detected in associated Method Blank

H - Holding times exceeded

M - Manual Integration used to determine area response

R - RPD outside accepted recovery limits

X - Value exceeds Maximum Contaminant Level



Case Narrative

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110462

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Cooler Receipt Temp: 14.0 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2014	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2014	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2014	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2014	Springfield
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2014	Collinsville
Arkansas	ADEQ	88-0966		3/14/2014	Collinsville
Illinois	IDPH	17584		5/31/2015	Collinsville
Kentucky	UST	0073		4/5/2014	Collinsville
Missouri	MDNR	00930		5/31/2015	Collinsville
Oklahoma	ODEQ	9978		8/31/2014	Collinsville



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110462

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Lab ID: 13110462-001

Client Sample ID: SB-5 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/08/2013 12:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/11/2013 12:45	93567
Barium	NELAP	0.005		0.0487	mg/L	1	11/11/2013 12:45	93567
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/11/2013 12:45	93567
Chromium	NELAP	0.01		0.0159	mg/L	1	11/11/2013 12:45	93567
Lead	NELAP	0.04	J	0.014	mg/L	1	11/11/2013 12:45	93567
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/11/2013 12:45	93567
Silver	NELAP	0.01		< 0.01	mg/L	1	11/11/2013 12:45	93567
Zinc	NELAP	0.01		0.0279	mg/L	1	11/11/2013 12:45	93567
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/11/2013 12:45	93568



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110462

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Lab ID: 13110462-002

Client Sample ID: SB-5 (0.5-1.0 ft)

Matrix: SOLID

Collection Date: 11/08/2013 12:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/11/2013 12:49	93567
Barium	NELAP	0.005		0.0542	mg/L	1	11/11/2013 12:49	93567
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/11/2013 12:49	93567
Chromium	NELAP	0.01		0.0118	mg/L	1	11/11/2013 12:49	93567
Lead	NELAP	0.04	J	0.014	mg/L	1	11/11/2013 12:49	93567
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/11/2013 12:49	93567
Silver	NELAP	0.01		< 0.01	mg/L	1	11/11/2013 12:49	93567
Zinc	NELAP	0.01		0.0267	mg/L	1	11/11/2013 12:49	93567
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/11/2013 12:47	93568



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110462

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Lab ID: 13110462-003

Client Sample ID: SB-6 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/08/2013 13:05

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/11/2013 12:53	93567
Barium	NELAP	0.005		0.0285	mg/L	1	11/11/2013 12:53	93567
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/11/2013 12:53	93567
Chromium	NELAP	0.01	J	0.0041	mg/L	1	11/11/2013 12:53	93567
Lead	NELAP	0.04	J	0.0092	mg/L	1	11/11/2013 12:53	93567
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/11/2013 12:53	93567
Silver	NELAP	0.01		< 0.01	mg/L	1	11/11/2013 12:53	93567
Zinc	NELAP	0.01		0.0147	mg/L	1	11/11/2013 12:53	93567
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/11/2013 12:49	93568



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110462

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Lab ID: 13110462-004

Client Sample ID: SB-6 (0.5-1.0 ft)

Matrix: SOLID

Collection Date: 11/08/2013 13:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/11/2013 13:04	93567
Barium	NELAP	0.005		0.0357	mg/L	1	11/11/2013 13:04	93567
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/11/2013 13:04	93567
Chromium	NELAP	0.01	J	0.006	mg/L	1	11/11/2013 13:04	93567
Lead	NELAP	0.04	J	0.018	mg/L	1	11/11/2013 13:04	93567
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/11/2013 13:04	93567
Silver	NELAP	0.01		< 0.01	mg/L	1	11/11/2013 13:04	93567
Zinc	NELAP	0.01		0.0203	mg/L	1	11/11/2013 13:04	93567
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/11/2013 12:51	93568



Receiving Check List

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110462

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Carrier: [REDACTED]

Received By: TB

Completed by:

Emily Pohlman

Reviewed by:

Marvin L. Darling II

On:

On:

08-Nov-13

08-Nov-13

Emily E. Pohlman

Marvin L. Darling

Pages to follow: Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Temp °C 14.0

Type of thermal preservation?

None ☐

Ice ☒

Blue Ice ☐

Dry Ice ☐

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Reported field parameters measured:

Field ☐

Lab ☐

NA ☒

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water ; at least one vial per sample has zero headspace?

Yes ☐

No ☐

No VOA vials ☒

Water - TOX containers have zero headspace?

Yes ☐

No ☐

No TOX containers ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

NA ☒

NPDES/CWA TCN interferences checked/treated in the field?

Yes ☐

No ☐

NA ☒

Any No responses must be detailed below or on the COC.

pg. of Work Order #

pg. of Work Order #

Phone: (618) 344-1004 ~ Fax: (618) 344-1005

E-Mail:

$$=ax:$$

• Are these samples known to be involved in litigation? If yes, a surcharge will apply. ☐ Yes ☒ No

• Are these samples known to be hazardous? ☐ Yes ☒ No

• Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in comment section. ☐ Yes ☒ No

Sample Collector's Name

[illegible]☐ Standard ☐ 1-2 Day (100% Surcharge)☒ Other _____ ☐ 3 Day (50% Surcharge)

Lab Use Only	Sample Identification	Date/Time Sampled
--------------	-----------------------	-------------------

13/04)

[illegible]

558	11/12/11	1:01	507566	202
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703	506005	11/17	1303
-----	--------	-------	------

4-10-50 9-65 1961 1963 1961

[illegible][illegible]

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[illegible]

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[illegible][illegible]

Figure 1

The individual signing this agreement on behalf of client acknowledges

conditions of this agreement, on the reverse side, and that he/she has

The individual signing this agreement on behalf of client acknowledges that he/she has read and understands the terms and conditions of this agreement, on the reverse side, and that he/she has the authority to sign on behalf of client.

WHITE LAB YELLOW SAMPLER'S COPY

November 11, 2013

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]



RE: ASARCO 1924220A

WorkOrder: 13110461

Dear [REDACTED]:

TEKLAB, INC received 4 samples on 11/8/2013 4:05:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Client: [REDACTED]

Work Order: 13110461

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Abbr Definition

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.

DNI Did not ignite

DUP Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MB Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TNTC Too numerous to count (> 200 CFU)

Qualifiers

- Unknown hydrocarbon

E - Value above quantitation range

J - Analyte detected below quantitation limits

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside recovery limits

B - Analyte detected in associated Method Blank

H - Holding times exceeded

M - Manual Integration used to determine area response

R - RPD outside accepted recovery limits

X - Value exceeds Maximum Contaminant Level



Case Narrative

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110461

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Cooler Receipt Temp: 14.0 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2014	Collinsville
Kansas	KDHE	E-10374	NELAP	1/31/2014	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2014	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2014	Springfield
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2014	Collinsville
Arkansas	ADEQ	88-0966		3/14/2014	Collinsville
Illinois	IDPH	17584		5/31/2015	Collinsville
Kentucky	UST	0073		4/5/2014	Collinsville
Missouri	MDNR	00930		5/31/2015	Collinsville
Oklahoma	ODEQ	9978		8/31/2014	Collinsville



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110461

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Lab ID: 13110461-001

Client Sample ID: SB-5 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/08/2013 12:50

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		12.1	%	1	11/08/2013 17:06	R183845
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.45		5.32	mg/Kg-dry	1	11/11/2013 9:24	93547
Barium	NELAP	0.49		88.7	mg/Kg-dry	1	11/11/2013 9:24	93547
Cadmium	NELAP	0.2		0.23	mg/Kg-dry	1	11/11/2013 9:24	93547
Chromium	NELAP	0.98		12.8	mg/Kg-dry	1	11/11/2013 9:24	93547
Lead	NELAP	3.92		43.9	mg/Kg-dry	1	11/11/2013 9:24	93547
Selenium	NELAP	3.92		< 3.92	mg/Kg-dry	1	11/11/2013 9:24	93547
Silver	NELAP	0.54		< 0.54	mg/Kg-dry	1	11/11/2013 9:24	93547
Zinc	NELAP	0.98		49.7	mg/Kg-dry	1	11/11/2013 9:24	93547
SW-846 7471B								
Mercury	NELAP	0.011		0.018	mg/Kg-dry	1	11/11/2013 11:09	93549



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110461

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Lab ID: 13110461-002

Client Sample ID: SB-5 (0.5-1.0 ft)

Matrix: SOLID

Collection Date: 11/08/2013 12:55

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		13.7	%	1	11/08/2013 17:06	R183845
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.45		5.75	mg/Kg-dry	1	11/11/2013 9:27	93547
Barium	NELAP	0.49		109	mg/Kg-dry	1	11/11/2013 9:27	93547
Cadmium	NELAP	0.2		0.28	mg/Kg-dry	1	11/11/2013 9:27	93547
Chromium	NELAP	0.98		12.8	mg/Kg-dry	1	11/11/2013 9:27	93547
Lead	NELAP	3.92		54.5	mg/Kg-dry	1	11/11/2013 9:27	93547
Selenium	NELAP	3.92		< 3.92	mg/Kg-dry	1	11/11/2013 9:27	93547
Silver	NELAP	0.54		< 0.54	mg/Kg-dry	1	11/11/2013 9:27	93547
Zinc	NELAP	0.98		55.7	mg/Kg-dry	1	11/11/2013 9:27	93547
SW-846 7471B								
Mercury	NELAP	0.011		0.023	mg/Kg-dry	1	11/11/2013 11:11	93549



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110461

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Lab ID: 13110461-003

Client Sample ID: SB-6 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/08/2013 13:05

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		10.4	%	1	11/08/2013 17:07	R183845
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.36		4.52	mg/Kg-dry	1	11/11/2013 9:31	93547
Barium	NELAP	0.47		50.9	mg/Kg-dry	1	11/11/2013 9:31	93547
Cadmium	NELAP	0.19		0.29	mg/Kg-dry	1	11/11/2013 9:31	93547
Chromium	NELAP	0.94		10.9	mg/Kg-dry	1	11/11/2013 9:31	93547
Lead	NELAP	3.77		46.3	mg/Kg-dry	1	11/11/2013 9:31	93547
Selenium	NELAP	3.77		< 3.77	mg/Kg-dry	1	11/11/2013 9:31	93547
Silver	NELAP	0.52		< 0.52	mg/Kg-dry	1	11/11/2013 9:31	93547
Zinc	NELAP	0.94		44.2	mg/Kg-dry	1	11/11/2013 9:31	93547
SW-846 7471B								
Mercury	NELAP	0.011		0.014	mg/Kg-dry	1	11/11/2013 11:13	93549



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110461

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Lab ID: 13110461-004

Client Sample ID: SB-6 (0.5-1.0 ft)

Matrix: SOLID

Collection Date: 11/08/2013 13:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		9.1	%	1	11/08/2013 17:07	R183845
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.5		7.22	mg/Kg-dry	1	11/11/2013 9:35	93547
Barium	NELAP	0.5		54.9	mg/Kg-dry	1	11/11/2013 9:35	93547
Cadmium	NELAP	0.2		0.29	mg/Kg-dry	1	11/11/2013 9:35	93547
Chromium	NELAP	1		14.4	mg/Kg-dry	1	11/11/2013 9:35	93547
Lead	NELAP	4		50.5	mg/Kg-dry	1	11/11/2013 9:35	93547
Selenium	NELAP	4		< 4	mg/Kg-dry	1	11/11/2013 9:35	93547
Silver	NELAP	0.55		< 0.55	mg/Kg-dry	1	11/11/2013 9:35	93547
Zinc	NELAP	1		47	mg/Kg-dry	1	11/11/2013 9:35	93547
SW-846 7471B								
Mercury	NELAP	0.01		0.014	mg/Kg-dry	1	11/11/2013 11:16	93549



Receiving Check List

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13110461

Client Project: ASARCO 1924220A

Report Date: 11-Nov-13

Carrier: [REDACTED]

Received By: TB

Completed by:

Emily Pohlman

Reviewed by:

Marvin L. Darling II

On:

On:

08-Nov-13

08-Nov-13

Emily E. Pohlman

Marvin L. Darling

Pages to follow: Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>	Temp °C 14.0
Type of thermal preservation?	None <input type="checkbox"/>	Ice <input checked="" type="checkbox"/>	Blue Ice <input type="checkbox"/>	Dry Ice <input type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		
Reported field parameters measured:	Field <input type="checkbox"/>	Lab <input type="checkbox"/>	NA <input checked="" type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>		

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water ; at least one vial per sample has zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials <input checked="" type="checkbox"/>
Water - TOX containers have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No TOX containers <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
NPDES/CWA TCN interferences checked/treated in the field?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Any No responses must be detailed below or on the COC.

Client: [REDACTED]
Address: [REDACTED]
City / State / Zip: [REDACTED]
Contact: [REDACTED] Phone: [REDACTED]
E-Mail: [REDACTED] Fax: [REDACTED]

Samples on: ☒ ICE ☐ BLUE ICE ☐ NO ICE 17.0 °C

Preserved in: ☐ LAB ☐ FIELD

FOR LAB USE ONLY

Lab Notes

Client Comments:

Project Name/Number

Asarco 1924220A

Sample Collector's Name

Results Requested

☐ Standard ☐ 1-2 Day (100% Surcharge) ☐ 3 Day (50% Surcharge)

Billing Instructions

Lab Use Only	Sample Identification	Date/Time Sampled
--------------	-----------------------	-------------------

15110461 02-53-0000

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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2000	2000	2000	2000
------	------	------	------

# and Type of Containers	OTHER
	NaHSO4
	MeOH
	HCL
	H2SO4
	NaOH
	HNO3
	UNPRES

INDICATE ANALYSIS REQUESTED

Special Waste
Sludge
Soil
Drinking Water
Aqueous

SPLP 8 RCRA + Zn

8 RCRA + Zn

Sludge

Soil

Drinking Water

Aqueous

Relinquished By

Date/Time

Received By

Date/Time

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client.

BottleOrder:

17250



November 25, 2013

[REDACTED]



RE: ASARCO 1924220A

WorkOrder: 13111214

[REDACTED]

TEKLAB, INC received 6 samples on 11/22/2013 3:55:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Client: [REDACTED]

Work Order: 13111214

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Abbr Definition

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.

DNI Did not ignite

DUP Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MB Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL Method detection limit means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TNTC Too numerous to count (> 200 CFU)

Qualifiers

- Unknown hydrocarbon

E - Value above quantitation range

J - Analyte detected below quantitation limits

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside recovery limits

B - Analyte detected in associated Method Blank

H - Holding times exceeded

M - Manual Integration used to determine area response

R - RPD outside accepted recovery limits

X - Value exceeds Maximum Contaminant Level



Case Narrative

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111214

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Cooler Receipt Temp: 3.0 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2014	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2014	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2014	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2014	Springfield
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2014	Collinsville
Arkansas	ADEQ	88-0966		3/14/2014	Collinsville
Illinois	IDPH	17584		5/31/2015	Collinsville
Kentucky	UST	0073		4/5/2014	Collinsville
Missouri	MDNR	00930		5/31/2015	Collinsville
Oklahoma	ODEQ	9978		8/31/2014	Collinsville



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111214

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111214-001

Client Sample ID: SB-7 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/21/2013 13:05

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025	J	< 0.025	mg/L	1	11/25/2013 14:02	94069
Barium	NELAP	0.05		0.045	mg/L	1	11/25/2013 14:02	94069
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/25/2013 14:02	94069
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/25/2013 14:02	94069
Lead	NELAP	0.04		0.0518	mg/L	1	11/25/2013 14:02	94069
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/25/2013 14:02	94069
Silver	NELAP	0.01		< 0.01	mg/L	1	11/25/2013 14:02	94069
Zinc	NELAP	0.01		0.0276	mg/L	1	11/25/2013 14:02	94069
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/25/2013 12:25	94068



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111214

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111214-002

Client Sample ID: SB-7 (0.5-1.0 ft)

Matrix: SOLID

Collection Date: 11/21/2013 13:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/25/2013 14:06	94069
Barium	NELAP	0.05	J	0.049	mg/L	1	11/25/2013 14:06	94069
Cadmium	NELAP	0.002	J	0.0003	mg/L	1	11/25/2013 14:06	94069
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/25/2013 14:06	94069
Lead	NELAP	0.04		0.0635	mg/L	1	11/25/2013 14:06	94069
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/25/2013 14:06	94069
Silver	NELAP	0.01		< 0.01	mg/L	1	11/25/2013 14:06	94069
Zinc	NELAP	0.01		0.0389	mg/L	1	11/25/2013 14:06	94069
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/25/2013 12:37	94068



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111214

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111214-003

Client Sample ID: SB-8 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/21/2013 14:15

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025	J	< 0.025	mg/L	1	11/25/2013 14:17	94069
Barium	NELAP	0.05		0.047	mg/L	1	11/25/2013 14:17	94069
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/25/2013 14:17	94069
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/25/2013 14:17	94069
Lead	NELAP	0.04		0.0838	mg/L	1	11/25/2013 14:17	94069
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/25/2013 14:17	94069
Silver	NELAP	0.01		< 0.01	mg/L	1	11/25/2013 14:17	94069
Zinc	NELAP	0.01		0.0214	mg/L	1	11/25/2013 14:17	94069
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/25/2013 12:39	94068



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111214

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111214-004

Client Sample ID: SB-8 (0.5-1.0 ft)

Matrix: SOLID

Collection Date: 11/21/2013 14:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/25/2013 14:21	94069
Barium	NELAP	0.05		0.0601	mg/L	1	11/25/2013 14:21	94069
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/25/2013 14:21	94069
Chromium	NELAP	0.01	J	0.0056	mg/L	1	11/25/2013 14:21	94069
Lead	NELAP	0.04		0.104	mg/L	1	11/25/2013 14:21	94069
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/25/2013 14:21	94069
Silver	NELAP	0.01		< 0.01	mg/L	1	11/25/2013 14:21	94069
Zinc	NELAP	0.01		0.0226	mg/L	1	11/25/2013 14:21	94069
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/25/2013 12:43	94068



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111214

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111214-005

Client Sample ID: SB-9 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/21/2013 14:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/25/2013 14:28	94069
Barium	NELAP	0.05		0.0656	mg/L	1	11/25/2013 14:28	94069
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/25/2013 14:28	94069
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/25/2013 14:28	94069
Lead	NELAP	0.04		0.072	mg/L	1	11/25/2013 14:28	94069
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/25/2013 14:28	94069
Silver	NELAP	0.01		< 0.01	mg/L	1	11/25/2013 14:28	94069
Zinc	NELAP	0.01		0.0143	mg/L	1	11/25/2013 14:28	94069
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/25/2013 12:46	94068



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111214

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111214-006

Client Sample ID: SB-9 (0.5-1.0 ft)

Matrix: SOLID

Collection Date: 11/21/2013 14:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
SW-846 1312, 3005A, 6010B, METALS IN SPLP EXTRACT BY ICP								
Arsenic	NELAP	0.025		< 0.025	mg/L	1	11/25/2013 14:40	94069
Barium	NELAP	0.05		0.0558	mg/L	1	11/25/2013 14:40	94069
Cadmium	NELAP	0.002		< 0.002	mg/L	1	11/25/2013 14:40	94069
Chromium	NELAP	0.01		< 0.01	mg/L	1	11/25/2013 14:40	94069
Lead	NELAP	0.04		0.0752	mg/L	1	11/25/2013 14:40	94069
Selenium	NELAP	0.05		< 0.05	mg/L	1	11/25/2013 14:40	94069
Silver	NELAP	0.01		< 0.01	mg/L	1	11/25/2013 14:40	94069
Zinc	NELAP	0.01		0.0138	mg/L	1	11/25/2013 14:40	94069
SW-846 1312, 7470A IN SPLP EXTRACT								
Mercury	NELAP	0.0002		< 0.0002	mg/L	1	11/25/2013 12:48	94068



Receiving Check List

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111214

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Carrier: [REDACTED]

Received By: SRH

Completed by:

Emily Pohlman

Reviewed by:

Marvin L. Darling II

On:

On:

22-Nov-13

22-Nov-13

Emily E. Pohlman

Marvin L. Darling

Pages to follow: Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Temp °C 3.0

Type of thermal preservation?

None ☐

Ice ☒

Blue Ice ☐

Dry Ice ☐

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Reported field parameters measured:

Field ☐

Lab ☐

NA ☒

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water ; at least one vial per sample has zero headspace?

Yes ☐

No ☐

No VOA vials ☒

Water - TOX containers have zero headspace?

Yes ☐

No ☐

No TOX containers ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

NA ☒

NPDES/CWA TCN interferences checked/treated in the field?

Yes ☐

No ☐

NA ☒

Any No responses must be detailed below or on the COC.

CHAIN OF CUSTODY

pg. 1 of 1 Work order # 13111214

TEKLAB, INC. 5445 Horseshoe Lake Road - Collinsville, IL 62234 - Phone: (618) 344-1004 - Fax: (618) 344-1005

Client: [Redacted] Address: [Redacted] City / State / Zip: [Redacted] Contact: [Redacted] Phone: [Redacted] E-Mail: [Redacted] Fax: [Redacted]				Samples on: <input checked="" type="checkbox"/> ICE <input type="checkbox"/> BLUE ICE <input type="checkbox"/> NO ICE 3.0 °C Preserved in: <input type="checkbox"/> LAB <input type="checkbox"/> FIELD FOR LAB USE ONLY Lab Notes: One Day TAT							
Are these samples known to be involved in litigation? If yes, a surcharge will apply <input type="checkbox"/> Yes <input type="checkbox"/> No Are these samples known to be hazardous? <input type="checkbox"/> Yes <input type="checkbox"/> No Are there any required reporting limits to be met on the requested analysis? If yes, please provide limits in the comment section. <input type="checkbox"/> Yes <input type="checkbox"/> No				Client Comments: Rush ASAP TAT Teklab, Inc. Courier Pick Up							
Project Name/Number Asarco 1924220A		Sample Collector's Name [Redacted]		MATRIX		INDICATE ANALYSIS REQUESTED					
Results Requested <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 1-2 Day (100% Surcharge) <input type="checkbox"/> Other <input type="checkbox"/> 3 Day (50% Surcharge)		Billing Instructions		# and Type of Containers UNPRES HNO3 NaOH H2SO4 HCL MeOH NaHSO4 OTHER		Aqueous Drinking Water Soil Sludge Special Waste		SPLP & RCRA + Zn RCRA + Zn			
Lab Use Only	Sample Identification	Date/Time Sampled									
1511214	SB-7 (0-0.5 FT)	11/21/13 1305									
702	SB-7 (0.5-1.0 FT)	1310									
703	SB-8 (0-0.5 FT)	1415									
704	SB-8 (0.5-1.0 FT)	1420									
705	SB-9 (0-0.5 FT)	1430									
706	SB-9 (0.5-1.0 FT)	1435									
Relinquished By		Date/Time		Received By		Date/Time					
[Redacted]		11/22/13		[Redacted]		11/22/13 15:05					
		11/22/13 15:55		Stephan Hays		11/22/13 15:55					

The individual signing this agreement on behalf of the client, acknowledges that he/she has read and understands the terms and conditions of this agreement, and that he/she has the authority to sign on behalf of the client.

BottleOrder: 17387



November 25, 2013

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]



RE: ASARCO 1924220A

WorkOrder: 13111215

Dear [REDACTED]:

TEKLAB, INC received 6 samples on 11/22/2013 3:55:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,



Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Client: [REDACTED]

Work Order: 13111215

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Abbr Definition

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilutions factors.

DNI Did not ignite

DUP Laboratory duplicate is an aliquot of a sample taken from the same container under laboratory conditions for independent processing and analysis independently of the original aliquot.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample, spiked with verified known amounts of analytes, is analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system. The acceptable recovery range is in the QC Package (provided upon request).

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MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions. The acceptable recovery range is listed in the QC Package (provided upon request).

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TNTC Too numerous to count (> 200 CFU)

Qualifiers

- Unknown hydrocarbon

E - Value above quantitation range

J - Analyte detected below quantitation limits

ND - Not Detected at the Reporting Limit

S - Spike Recovery outside recovery limits

B - Analyte detected in associated Method Blank

H - Holding times exceeded

M - Manual Integration used to determine area response

R - RPD outside accepted recovery limits

X - Value exceeds Maximum Contaminant Level



Case Narrative

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111215

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Cooler Receipt Temp: 3.4 °C

Locations and Accreditations

	Collinsville	Springfield	Kansas City	Collinsville Air
Address	5445 Horseshoe Lake Road Collinsville, IL 62234-7425	3920 Pintail Dr Springfield, IL 62711-9415	8421 Nieman Road Lenexa, KS 66214	5445 Horseshoe Lake Road Collinsville, IL 62234-7425
Phone	(618) 344-1004	(217) 698-1004	(913) 541-1998	(618) 344-1004
Fax	(618) 344-1005	(217) 698-1005	(913) 541-1998	(618) 344-1005
Email	jhriley@teklabinc.com	KKlostermann@teklabinc.com	dthompson@teklabinc.com	EHurley@teklabinc.com

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2014	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2014	Collinsville
Louisiana	LDEQ	166493	NELAP	6/30/2014	Collinsville
Louisiana	LDEQ	166578	NELAP	6/30/2014	Springfield
Texas	TCEQ	T104704515-12-1	NELAP	7/31/2014	Collinsville
Arkansas	ADEQ	88-0966		3/14/2014	Collinsville
Illinois	IDPH	17584		5/31/2015	Collinsville
Kentucky	UST	0073		4/5/2014	Collinsville
Missouri	MDNR	00930		5/31/2015	Collinsville
Oklahoma	ODEQ	9978		8/31/2014	Collinsville



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111215

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111215-001

Client Sample ID: SB-7 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/21/2013 13:05

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		45.5	%	1	11/22/2013 18:00	R184447
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.45		10.4	mg/Kg-dry	1	11/25/2013 10:02	94042
Barium	NELAP	0.49		176	mg/Kg-dry	1	11/25/2013 10:02	94042
Cadmium	NELAP	0.2		2.97	mg/Kg-dry	1	11/25/2013 10:02	94042
Chromium	NELAP	0.98		15.2	mg/Kg-dry	1	11/25/2013 10:02	94042
Lead	NELAP	3.92		1180	mg/Kg-dry	1	11/25/2013 10:02	94042
Selenium	NELAP	3.92		< 3.92	mg/Kg-dry	1	11/25/2013 10:02	94042
Silver	NELAP	0.54		< 0.54	mg/Kg-dry	1	11/25/2013 10:02	94042
Zinc	NELAP	0.98		349	mg/Kg-dry	1	11/25/2013 10:02	94042
SW-846 7471B								
Mercury	NELAP	0.017		0.184	mg/Kg-dry	1	11/25/2013 11:26	94063



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111215

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111215-002

Client Sample ID: SB-7 (0.5-1.0 ft)

Matrix: SOLID

Collection Date: 11/21/2013 13:10

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		39.9	%	1	11/22/2013 18:00	R184447
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.45		12.7	mg/Kg-dry	1	11/25/2013 10:05	94042
Barium	NELAP	0.49		205	mg/Kg-dry	1	11/25/2013 10:05	94042
Cadmium	NELAP	0.2		3.03	mg/Kg-dry	1	11/25/2013 10:05	94042
Chromium	NELAP	0.98		15.3	mg/Kg-dry	1	11/25/2013 10:05	94042
Lead	NELAP	3.92		1380	mg/Kg-dry	1	11/25/2013 10:05	94042
Selenium	NELAP	3.92		< 3.92	mg/Kg-dry	1	11/25/2013 10:05	94042
Silver	NELAP	0.54		< 0.54	mg/Kg-dry	1	11/25/2013 10:05	94042
Zinc	NELAP	0.98		440	mg/Kg-dry	1	11/25/2013 10:05	94042
SW-846 7471B								
Mercury	NELAP	0.016		0.159	mg/Kg-dry	1	11/25/2013 11:32	94063



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111215

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111215-003

Client Sample ID: SB-8 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/21/2013 14:15

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		25.5	%	1	11/22/2013 18:01	R184447
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.27		9.98	mg/Kg-dry	1	11/25/2013 10:09	94042
Barium	NELAP	0.45		88	mg/Kg-dry	1	11/25/2013 10:09	94042
Cadmium	NELAP	0.18		3.91	mg/Kg-dry	1	11/25/2013 10:09	94042
Chromium	NELAP	0.91		15.4	mg/Kg-dry	1	11/25/2013 10:09	94042
Lead	NELAP	3.64		1270	mg/Kg-dry	1	11/25/2013 10:09	94042
Selenium	NELAP	3.64		< 3.64	mg/Kg-dry	1	11/25/2013 10:09	94042
Silver	NELAP	0.5		< 0.5	mg/Kg-dry	1	11/25/2013 10:09	94042
Zinc	NELAP	0.91		230	mg/Kg-dry	1	11/25/2013 10:09	94042
SW-846 7471B								
Mercury	NELAP	0.013		0.034	mg/Kg-dry	1	11/25/2013 11:35	94063



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111215

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111215-004

Client Sample ID: SB-8 (0.5-1.0 ft)

Matrix: SOLID

Collection Date: 11/21/2013 14:20

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		24.4	%	1	11/22/2013 18:01	R184447
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.36		11.2	mg/Kg-dry	1	11/25/2013 10:13	94042
Barium	NELAP	0.47		144	mg/Kg-dry	1	11/25/2013 10:13	94042
Cadmium	NELAP	0.19		2.05	mg/Kg-dry	1	11/25/2013 10:13	94042
Chromium	NELAP	0.94		18.4	mg/Kg-dry	1	11/25/2013 10:13	94042
Lead	NELAP	3.77		1290	mg/Kg-dry	1	11/25/2013 10:13	94042
Selenium	NELAP	3.77		< 3.77	mg/Kg-dry	1	11/25/2013 10:13	94042
Silver	NELAP	0.52		< 0.52	mg/Kg-dry	1	11/25/2013 10:13	94042
Zinc	NELAP	0.94		153	mg/Kg-dry	1	11/25/2013 10:13	94042
SW-846 7471B								
Mercury	NELAP	0.013		0.039	mg/Kg-dry	1	11/25/2013 11:37	94063



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111215

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111215-005

Client Sample ID: SB-9 (0-0.5 ft)

Matrix: SOLID

Collection Date: 11/21/2013 14:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		17.1	%	1	11/22/2013 18:01	R184447
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.27		8.34	mg/Kg-dry	1	11/25/2013 10:16	94042
Barium	NELAP	0.45		118	mg/Kg-dry	1	11/25/2013 10:16	94042
Cadmium	NELAP	0.18		0.38	mg/Kg-dry	1	11/25/2013 10:16	94042
Chromium	NELAP	0.91		12.7	mg/Kg-dry	1	11/25/2013 10:16	94042
Lead	NELAP	3.64		770	mg/Kg-dry	1	11/25/2013 10:16	94042
Selenium	NELAP	3.64		< 3.64	mg/Kg-dry	1	11/25/2013 10:16	94042
Silver	NELAP	0.5		< 0.5	mg/Kg-dry	1	11/25/2013 10:16	94042
Zinc	NELAP	0.91		60.9	mg/Kg-dry	1	11/25/2013 10:16	94042
SW-846 7471B								
Mercury	NELAP	0.012		0.043	mg/Kg-dry	1	11/25/2013 11:39	94063



Laboratory Results

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111215

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Lab ID: 13111215-006

Client Sample ID: SB-9 (0.5-1.0 ft)

Matrix: SOLID

Collection Date: 11/21/2013 14:35

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA SW846 3550C, 5035A, ASTM D2974								
Percent Moisture		0.1		18.8	%	1	11/22/2013 18:01	R184447
SW-846 3050B, 6010B, METALS BY ICP								
Arsenic	NELAP	2.36		8.42	mg/Kg-dry	1	11/25/2013 10:20	94042
Barium	NELAP	0.47		88	mg/Kg-dry	1	11/25/2013 10:20	94042
Cadmium	NELAP	0.19		0.4	mg/Kg-dry	1	11/25/2013 10:20	94042
Chromium	NELAP	0.94		9.3	mg/Kg-dry	1	11/25/2013 10:20	94042
Lead	NELAP	3.77		1140	mg/Kg-dry	1	11/25/2013 10:20	94042
Selenium	NELAP	3.77		< 3.77	mg/Kg-dry	1	11/25/2013 10:20	94042
Silver	NELAP	0.52		< 0.52	mg/Kg-dry	1	11/25/2013 10:20	94042
Zinc	NELAP	0.94		61.9	mg/Kg-dry	1	11/25/2013 10:20	94042
SW-846 7471B								
Mercury	NELAP	0.012		0.041	mg/Kg-dry	1	11/25/2013 11:42	94063



Receiving Check List

<http://www.teklabinc.com/>

Client: [REDACTED]

Work Order: 13111215

Client Project: ASARCO 1924220A

Report Date: 25-Nov-13

Carrier: [REDACTED]

Received By: SRH

Completed by:

Emily Pohlman

Reviewed by:

Marvin L. Darling II

On:

On:

22-Nov-13

22-Nov-13

Emily E. Pohlman

Marvin L. Darling

Pages to follow: Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Temp °C 3.4

Type of thermal preservation?

None ☐

Ice ☒

Blue Ice ☐

Dry Ice ☐

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Reported field parameters measured:

Field ☐

Lab ☐

NA ☒

Container/Temp Blank temperature in compliance?

Yes ☒

No ☐

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water; at least one vial per sample has zero headspace?

Yes ☐

No ☐

No VOA vials ☒

Water - TOX containers have zero headspace?

Yes ☐

No ☐

No TOX containers ☒

Water - pH acceptable upon receipt?

Yes ☐

No ☐

NA ☒

NPDES/CWA TCN interferences checked/treated in the field?

Yes ☐

No ☐

NA ☒

Any No responses must be detailed below or on the COC.

